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UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 CFR 1.53(b))	Attorney Docket No.	SC/C-I-P-4C	Total Pages	44
	First Named Inventor or Application Identifier			
	Scott Clare			
	Express Mail Label No.			

APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents	ADDRESS TO: Assistant Commissioner for Patents Box Patent Application Washington, DC 20231
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1. <input checked="" type="checkbox"/> Fee Transmittal Form (Submit an original, and a duplicate for fee processing)	6. <input type="checkbox"/> Microfiche Computer Program (Appendix)
2. <input checked="" type="checkbox"/> Specification [Total Pages 31] (preferred arrangement set forth below) <ul style="list-style-type: none">- Descriptive title of the invention- Cross References to Related Applications- Statement Regarding Fed sponsored R & D- Reference to Microfiche Appendix- Background of the invention- Brief Summary of the invention- Brief Description of the Drawings (if filed)- Detailed Description- Claim(s)- Abstract of the Disclosure	7. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) <ul style="list-style-type: none">a. <input type="checkbox"/> Computer Readable Copyb. <input type="checkbox"/> Paper Copy (identical to computer copy)c. <input type="checkbox"/> Statement verifying identity of above copies
3. <input checked="" type="checkbox"/> Drawing(s) (35 USC 113) [Total Sheets 11]	
4. Oath or Declaration [Total Pages 42] <ul style="list-style-type: none">a. <input type="checkbox"/> Newly executed (original or copy)b. <input checked="" type="checkbox"/> Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional with Box 17 completed) (Note Box 5 below)<ul style="list-style-type: none">i. <input type="checkbox"/> DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b)	
5. <input checked="" type="checkbox"/> Incorporation By Reference (useable if Box 4b is checked) The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein	

ACCOMPANYING APPLICATION PARTS	
8. <input type="checkbox"/> Assignment Papers (cover sheet & document(s))	
9. <input type="checkbox"/> 37 CFR 3.73(b) Statement [] Power of Attorney (when there is an assignee)	
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☒ Continuation [] Divisional [] Continuation-in-part (CIP) of prior application No 08 / 910,516

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Scott. Clare. et al

Serial No. :

Art Unit :

Filed :

Examiner :

For : Hidden Storage For Vehicles

Commissioner of Patents and Trademarks
Washington, D.C. 20231

CERTIFICATE OF MAILING UNDER 37 CFR 1.8(a)I hereby certify that the *attached* correspondence comprising:

1. Utility Patent Application Transmittal Form.
2. Patent Application with Declaration/Power of Attorney and 11 sheets of formal drawings.
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Patent fees are subject to annual revision on October 1.

These are the fees effective October 1, 1997

Small Entity payments must be supported by a small entity statement, otherwise large entity fees must be paid. See Forms PTO/SB/09-12.

TOTAL AMOUNT OF PAYMENT (\$ 395.00

Complete if Known

Application Number
Filing Date
First Named Inventor Scott Clare
Examiner Name
Group / Art Unit
Attorney Docket No. SC/C-I-P-4C

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
101 790	201 395	Utility filing fee	395.00
106 330	206 165	Design filing fee	
107 540	207 270	Plant filing fee	
108 790	208 395	Reissue filing fee	
114 150	214 75	Provisional filing fee	

SUBTOTAL (1) (\$ 395.00

2. EXTRA CLAIM FEES

Total Claims	Extra Claims	Fee from below	Fee Paid
20	-20** = 0	0	0
Independent Claims	2 - 3** = 0	0	0
Multiple Dependent			

**or number previously paid, if greater; For Reissues, see below

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
103 22	203 11	Claims in excess of 20
102 82	202 41	Independent claims in excess of 3
104 270	204 135	Multiple dependent claim, if not paid
109 82	209 41	** Reissue independent claims over original patent
110 22	210 11	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$ -0-

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
105 130	205 65	Surcharge - late filing fee or oath	
127 50	227 25	Surcharge - late provisional filing fee or cover sheet.	
139 130	139 130	Non-English specification	
147 2,520	147 2,520	For filing a request for reexamination	
112 920*	112 920*	Requesting publication of SIR prior to Examiner action	
113 1,840*	113 1,840*	Requesting publication of SIR after Examiner action	
115 110	215 55	Extension for reply within first month	
116 400	216 200	Extension for reply within second month	
117 950	217 475	Extension for reply within third month	
118 1,510	218 755	Extension for reply within fourth month	
128 2,060	228 1,030	Extension for reply within fifth month	
119 310	219 155	Notice of Appeal	
120 310	220 155	Filing a brief in support of an appeal	
121 270	221 135	Request for oral hearing	
138 1,510	138 1,510	Petition to institute a public use proceeding	
140 110	240 55	Petition to revive - unavoidable	
141 1,320	241 660	Petition to revive - unintentional	
142 1,320	242 660	Utility issue fee (or reissue)	
143 450	243 225	Design issue fee	
144 670	244 335	Plant issue fee	
122 130	122 130	Petitions to the Commissioner	
123 50	123 50	Petitions related to provisional applications	
126 240	126 240	Submission of Information Disclosure Stmt	
581 40	581 40	Recording each patent assignment per property (times number of properties)	
146 790	246 395	Filing a submission after final rejection (37 CFR 1.129(a))	
149 790	249 395	For each additional invention to be examined (37 CFR 1.129(b))	

Other fee (specify) _____

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* Reduced by Basic Filing Fee Paid

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SUBMITTED BY

Typed or
Printed Name L. E. Carnahan

Signature L. E. Carnahan

Date 5-19-98

Complete (if applicable)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Docket No.: SC/C-I-P-4C

Art Unit:

Examiner:

For: Hidden Storage for Vehicles

PRELIMINARY AMENDMENT

Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

Kindly amend the above-identified application, which is a Continuation Application filed under 37 CFR 1.53(b) of U.S. Application Serial No. 08/910,516 filed August 2, 1997, as follows:

In The Specification:

Page 1, (page between title page and page 2), prior to the title
line insert ---1---

Page 1, line 2, after "is" insert --a continuation of U.S. Application Serial No. 08/910,516 filed August 2, 1997, which is--;

line 3, before "which" insert --now abandoned--;

line 19, change "08/_____, filed July __, 1997" to
read --08/896,392 filed July 18, 1997--.

Page 9, line 15, change "08/(SC/C-I-P-3), filed July ____, 1997"
to read --08/896,388, filed July 18, 1997.

Page 10, line 13, after "13" insert --, wheels 14.--.

Page 11, line 8, change "bin 33" to read --bins 33 accessible along cut lines 34 when side panels 15 are raised--.

Page 14, line 5, change "the strut" to read --The strut--.

Page 19, lines 1 and 2, cancel;

line 3, cancel "herein."

Page 21, line 4, cancel "124'".

In The Claims:

Claim 1, line 10, cancel "hidden".

Claims 6, 8, 9 and 13, cancel.

Claim 10, line 3, change "raised" to read --opened--.

Claim 12, line 3, change "lowered or raised" to read --moved outwardly--.

Claims 15-23, cancel.

Please Add The Following Claims:

24. The hidden storage system of Claim 1, wherein said at least one storage box includes at least one means located in said storage box and selected from the group consisting of at least one compartment, at least one adjustable shelf, at least one slideable shelf, and at least one movable shelf.

25. In a vehicle having an enclosure for passengers, merchandise or equipment, and at least a rear door, the improvement comprising:

a hidden storage system mounted in at least one side of said enclosure without substantially altering an external appearance thereof and including:

a storage box fixedly secured to said at least one side of said enclosure,

said at least one side of said enclosure having at least a section thereof hinged such that outward movement thereof enables access to an interior of said storage box, and

a lock/latch assembly for securing said at least one hinged section to prevent outward movement thereof.

26. The vehicle of Claim 25, additionally including at least a driver's side door in said enclosure, and wherein said hidden storage system is located intermediate said driver's side door and said rear door.

27. The vehicle of Claim 25, additionally including a cab section having at least one door therein, said cab section being located forward of said enclosure.

28. The vehicle of Claim 27, wherein said enclosure comprises a floor section, a bulkhead section, a pair of side panel sections, and a tailgate section, said hidden storage system being mounted in at least one of said pair of side panel sections.

29. The vehicle of Claim 28, wherein each of said sections are prefabricated as modules and assembled to form said enclosure.

30. The vehicle of Claim 25, additionally including a plurality of hinged sections on said at least one side of said enclosure, such that outward movement of any of said hinged section enables access to at least a portion of the interior of said storage box.

31. The vehicle of Claim 25, wherein said enclosure is provided with at least one wheel well on each side thereof, and wherein said storage box extends forward, rearward and over said wheel well or extends along a horizontal line above said wheel well.

32. The vehicle of Claim 31, wherein said at least one hinged section is located entirely above said wheel well.


33. The vehicle of Claim 31, wherein said at least one hinged section is located forward, rearward and over said wheel well.

Remarks

The specification has been amended to set forth the current status of this application and its relationship to the chain of applications on which this application is based. The specification has also been amended to correct typographical errors and to describe certain components omitted in the description in the parent application. Claims 6, 8, 9, 13 and 15-23 have been cancelled and new Claims 24-33 added to provide Applicants with a greater variation in the scope of the claims. Examination of new Claims 24-33 along with original Claims 1-5, 7, 10-12 and 14 is requested.

Date: 5-19-98

Respectfully submitted,


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HIDDEN STORAGE FOR VEHICLES

BY

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and

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HIDDEN STORAGE FOR VEHICLES

Related Application

This application is a Continuation-In-Part of U.S. Application Serial No. 08/685,678 filed July 24, 1996, which is a Continuation-In-Part of U.S. Application Serial No. 08/506,893 filed July 26, 1995, now U.S. Patent No. 5,567,000 issued October 22, 1996.

Background Of The Invention

The present invention relates to storage systems for vehicles, particularly to hidden storage for vehicles having side panels, while maintaining the external appearance thereof, and more particularly to hidden storage for vans, utility and sports utility vehicles without substantially altering the external appearance of the vehicle.

Various types of storage/utility systems have been utilized in various types of vehicles, primarily pickups, trucks, and trailers for transporting and/or storing tools, materials, etc. Recently a hidden storage/utility system has been developed wherein the external appearance of the vehicle has not been changed, and the carrying capacity has not been significantly reduced. This hidden storage/utility system is described and claimed in above-referenced U.S. Patent No. 5,567,000. Also, copending Application Serial No. 08/_____, filed July __, 1997 entitled Hidden Storage/Utility System and Fabrication Thereof, describes and claims modifications of the hidden storage arrangement of Patent No. 5,567,000. Fabrication of the hidden storage/utility system may be carried out, for example, as described and claimed in above-referenced copending Application Serial No. 08/685,678.

The hidden storage/utility system basically involved providing storage adjacent the wheel well area along part or the entire length of the

bed, and providing, for example, the fender/side panel of the bed with a hinge and lock/latch arrangement, whereby the fender/side panel can be raised to expose the storage area, or closed and latched to conceal the storage area. In the closed position the external appearance is substantially the same as an identical vehicle without the hidden storage capability. Thus, by use of the hidden storage/utility system, the vehicle can be parked in areas where theft would likely occur from conventional storage/utility systems.

Like pickups, trucks and trailers, there is small to no hidden storage in vans, utility vehicles, and sports utility vehicles. Any hidden storage in such vehicles is in the interior thereof and access to the interior provides access to the hidden storage areas. Thus, theft from such vehicles is carried out by merely obtaining access to the interior thereof. To prevent potential theft, valuables must be removed from the vehicle and/or expensive alarm systems must be added. Thus, there has been a need for safe, readily accessible hidden storage in vans and utility/sports vehicles.

This need for hidden storage for such vehicles has been resolved by the present invention which involves an extension of the hidden storage/utility system of the above-referenced patent by applying the principles of that hidden storage system to vans, utility vehicles and sports utility vehicles, wherein side panel sections of the vehicle are hinged and provided with storage areas thereunder which are accessible upon raising (or lowering) the hinged side panel sections. In addition to the interior of the van, utility and/or sports utility vehicles, which provide storage but the storage is readily accessible to theft, the present invention provides hidden storage (a trunk) for such vehicles with minimum

Another object of the invention is to provide hidden storage for a van, utility or sports utility vehicle which may, for example, extend along the entire length or partial length of the vehicle from a door to the rear of the vehicle, and which is accessible only via one or more hinged and latched sections of the side panel or fender/side panel of the vehicle, with only minor modification of the external appearance of the vehicle.

Other objects and advantages of the present invention will become apparent from the following description and accompanying drawings.

Basically, the invention involves providing hidden storage for vehicles, particularly for vans, utility and sports utility vehicles, with only minor alteration of the normal external appearance of the vehicle. The minor alteration of the normal external appearance involves only thin vertical and/or horizontal lines in the side panels which define the edge or edges of the hinged side panel sections, the hinges for the side panel sections being hidden with a latch/lock arrangement being hidden and accessible from the rear interior of the vehicle or by electrical control from a key or keyless control in the vehicle. Due to the width of a normal vehicle side panel, which consists of an outer and an inner panel, removal of the inner panel, hinging of the outer panel, and positioning of a narrow storage box having its only opening adjacent the removed inner panel provides adequate storage space for long items such as snow or water skis, ski poles, surf board, rifles, etc., as well as for storage of camping/sports equipment or for materials or tools utilized in various trades. The narrow storage box, which may be as wide as the wheel wells of the vehicle, or narrower, results in only a small loss of interior space along the interior of one or both sides of the vehicle. By way of example, using a conventional van

having only a driver door on the left side of the van, the hidden storage could extend from adjacent the driver's door to the rear of the van, the storage box being configured, for example, to conform to the floor and any wheel well area of the van. With the storage box welded or otherwise
5 secured to the side of the van, the only access to the interior of the storage box is via one or more hinged portions of the outer panel section of the side panel or fender/side panel, depending on the external configuration of the vehicle. By use of hidden hinges and hidden latch mechanisms which are commercially available and capable of withstanding
10 1,500 pounds pry pressure and controlled by conventionally available lock systems, the only changes in the exterior appearance of the side panel of the vehicle are the narrow lines along the vertical and/or horizontal edges of the hinged side panel section. The hinged side panel sections are provided on the interior surfaces with sufficient support members and with
15 insulation/sound absorbing materials. The opening or openings in the side panels are provided with seals similar to car trunk lid seals, such that when the hinged side panel sections are closed, water/dust cannot enter the hidden storage area.

The hidden storage arrangement provided by this invention enables
20 numerous types of vehicles to be built or modified to include one or more hidden storage compartments which are accessible only via one or more hinged side panel sections of the vehicle, and with the hinged side panel(s) closed, the storage compartments are not easily identified because of the minor modification in the exterior surface of the vehicle. The
25 hidden storage can be incorporated into a vehicle by conventional assembly line techniques, modular fabrication and assembly, or conversion or retrofitting an existing vehicle.

Brief Description Of The Drawings

The accompanying drawings, which are incorporated into and form a part of the disclosure, illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention.

Figures 1-4 illustrate an embodiment of a storage system in a bed of a pickup truck in accordance with above-referenced U.S. Patent No. 5,567,000.

Figure 5 is a perspective view of a hidden storage system in a van in accordance with the present invention.

Figure 6 is a side view of a four-door utility vehicle with a hidden storage system in accordance with the present invention.

Figure 7 is a side view of a two-door sports utility vehicle with a hidden storage system incorporated therein according to the present invention.

Figures 8A and 8B are rear views of vehicles, such as shown in Figures 6 or 7, with a hidden storage system on each side and with strut assemblies to hold the hinged side panel sections in a raised or open position.

Figures 9-12 schematically illustrate various modifications of side panel and storage box arrangements of the hidden storage system of Figures 1-4 and 5-7.

Figures 13 and 14 schematically illustrate mechanical and electrical latch/lock arrangements for the hinged side panels.

Figures 15 and 16 illustrate embodiments of struts for the hinged side panels with Figure 15 having an insulated liner, while Figure 16 includes a heater unit.

Figure 17 schematically illustrates a shelving/storage arrangement for the storage box of the Figures 5-7 vehicles.

Figure 18 illustrates an adjustable and/or slideable shelving arrangement for the storage box of the vehicle.

5 Figure 19 illustrates an embodiment of a drain/air relief valve assembly for the storage box of the hidden storage system.

Detailed Description Of The Invention

10 The present invention is directed to hidden storage for vehicles, such as vans and utility/sports utility vehicles, without substantially altering the external appearance of the vehicle. The hidden storage for vehicles as provided by the present invention basically involves providing the vehicle with one or more storage boxes located adjacent one or more side panels of the vehicle, hinging at least one section of the one or more side panels, whereby the hinged section can be opened to expose the interior of the storage box, and providing latch/lock mechanisms for the hinged side panel sections. The only alterations of the external appearance of the vehicle are the narrow vertical and/or horizontal cuts defining the edges of the hinged side panel sections, the hinges and latch mechanisms being hidden.

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Vans, both passenger and commercial, as well as utility vehicles and sports utility vehicles, are widely utilized in various fields of work, play and vacations. A common problem, as pointed out above, with vans and utility/sports utility vehicles is a lack of hidden storage space. Once access to the interior of such a vehicle is made, one also has access to any hidden storage areas therein.

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In recent years utility vehicles, such as the Suburban made by General Motors Corporation, sports utility vehicles such as the Bronco or Explorer made by Ford Motor Company, and vans (both mini and full size) such as the Caravan made by Chrysler Corporation, have been popular vehicles for both work and personal use. Hereafter the term vehicle is intended to include all such vehicles. Many of these vehicles are equipped with four wheel drive and thus are widely used for camping and ski outings. However, a drawback of these vehicles is a lack of storage space, particularly, for example, when families of four to six people travel. As a result on ski outings, for example, the skis, ski poles, etc. are mounted on the top of the vehicle and are thus exposed to the environment and theft. If, for example, skis, etc. are to remain with the vehicle overnight, safety and security requires that the skis, etc. be removed from the top of the vehicle and placed inside the vehicle. Mere breakage of a window in a vehicle, for example, enables access to the interior thereof and theft of the skis or other equipment in the vehicle.

By incorporation of the present invention into such vehicles, skis, ski poles, etc., or water skis, surf boards, etc., for example, may be safely stored in the vehicle, and thus one gaining access to the interior of the vehicle does not have access to the storage area. Access to the storage area is only through a hinged/locked side panel section of the vehicle. Most vehicles of the type considered herein have sufficient length between a door and the rear of the vehicle to enable incorporation of the hidden storage area without adversely affecting the interior space of the vehicle. Thus, while the hidden storage/utility system of the above-referenced Patent No. 5,567,000 provides a "truck-with-a-trunk", the present invention provides vans and utility/sports utility vehicles with a

trunk, a hidden storage area, with only minor alterations to the external appearance thereof. The hidden storage also serves to provide means to remove unrestrained articles from inside the vehicle, thereby improving passenger safety.

5 The hidden storage system of the present invention may be fabricated from various materials including metals, fiberglass, reinforced plastics, and combinations thereof, as these various materials are now commonly utilized for various components in vehicle manufacturing.

10 The hidden storage may be incorporated by various methods, such as by an assembly line method or a conversion (retrofit) method similar to the techniques described and claimed in above-referenced copending Application Serial No. 08/685,678. Also, the components for the hidden storage system may be fabricated and/or assembled using a modular method similar to the technique described and claimed in copending U.S. Application Serial No. 15 08/(SC/C-I-P-3), filed July, 1997, entitled "Hidden Storage/Utility System Modular Fabrication Method".

20 While the invention is illustrated and described hereinafter for a van or utility vehicle, it can be incorporated into most vehicles of the type described above, it being recognized that vehicles having two doors on each side rather than a single door leaves less length between the rear door and the rear of the vehicle, and thus less space for hidden storage. Also, vehicles designed for the carrying of passengers, which include windows along the side, provide less space for incorporation of the hidden storage system than similar vehicles not designed for passenger use.

25 In view of the extension of the hidden storage/utility system of above-referenced Patent No. 5,567,000 to vans and utility/sports utility vehicles, again referred to hereinafter generically as vehicles, Figures

1-4 illustrate the hidden storage/utility system in a bed of a pickup truck. As seen in Figure 1, from a side view, the only alterations to the normal exterior side panel appearance are the two vertical lines or cuts indicating the front and rear edges of the hinged side panel. In a later configuration, only one cut under the tail light is visible. The hinge for each side panel is located on an inner area of the side panel so as not to be exposed to one viewing the bed from an external side position. Thus, one would not readily recognize the modification of the bed, and therefore those with intent to steal tools, etc. from the vehicle would not recognize the hidden storage arrangement.

Referring now to the drawings, Figures 1 and 2 illustrate a conventionally appearing pickup truck generally indicated at 10 having a cab 11, bed 12, frame or undercarriage 13 and includes side panels 15, a tail light arrangement 16, a hinged tail gate 17 with stop mechanisms 18, and wheel wells 19. However, the bed 12 of Figures 1 and 2 has been modified in accordance with the present invention, with the only indication of such modification being the cuts, small spaces, or lines 20 and 21 in the side panels 15, as shown in Figure 1, with the side panel being closed. Note that in this embodiment the side panels 15 terminate adjacent the frame or undercarriage 13.

As seen in Figures 2, 3 and 4, the hidden storage area is provided by storage or structure boxes 22 and 23 mounted within the bed 12 and over the wheel wells 19, the boxes 22 and 23 being constructed to cover the wheel wells 19, but not extend to the top or upper surface 24 of bed 12, and terminate in spaced relation to tail gate 17. A latch mechanism 25 is mounted in the rear of each of boxes 22 and 23, as seen in Figure 2, and is provided with a key lock 26. The latch mechanism 25 includes latch members

27 located in spaced relation along the bed 12, and which cooperate with corresponding latch members 28 in side panel 15, as shown in Figure 3. While not shown, the latch members 27 are interconnected by a rod or cable which is connected to mechanism 25 which includes a release for members 27.

5 As seen in Figure 3, the side panels 15 are each provided with braces 29 and a hinge 30 that extends the full length thereof. Shelves 31 and 32 are secured to the interior of storage or structure boxes 22 and 23, and the area forward of the wheel well 19 forms a storage bin 33. The hinges 30 are located on the interior of the bed 12 and thus not visible from the exterior, and may, for example, be radial swing type or pantograph lift type.

10 Figure 5 illustrates a van, such as a conventional three-door van, with a hidden storage system incorporated on the left or drivers side. While the van is illustrated as a passenger type, having windows along the side, and generally having a third door on the opposite or passenger side and a rear door, the hidden storage system can be incorporated into commercial type vans of various types, which may not include windows on the sides and may include only two doors plus a rear door. The interior of the van incorporating the hidden storage includes a storage box which extends
15 along the interior side of the van adjacent the hinged side panel sections as in Figures 1-4 embodiment, the width and height of the storage box being varied in accordance with various needs.

20 As shown in Figure 5, the van generally indicated at 50, such as a Dodge Caravan, is either initially assembled or modified (retrofitted) to include a storage box 51 and a hinged side panel section 52, with the storage box 51 and side panel section 52 being configured to extend over a rear wheel well 53 of van 50. The storage box 51 is provided with at least
25

one shelf as shown at 54, which may be of an adjustable type and/or slideable type. A seal assembly is utilized to seal out moisture and/or dust when the side panel section is closed, and the side panel section includes support members as in Figures 1-4. In Figure 5, the storage box 51 and hinged side panel section 52 extend from a point behind the driver's side door 55 to a point ahead of the rear 56 of van 50, and the side panel section 52 is hinged to raise upwardly. However, as described and illustrated hereafter with respect to Figures 9-12, the hinged side panel section(s) and/or storage box(s) may be located along only portions of the vehicle's side and/or may be split or hinged downwardly, sidewise, and/or upwardly. The hinges need not extend along the entire length of the hinged side panel section. Also, as illustrated with respect to the Figures 1-4 embodiment, and described hereinafter and illustrated in greater detail with respect to the Figures 13-14 embodiment, the hinged side panel section of Figure 5 is provided with a lock/latch mechanism of either a mechanical or electrical type. Also, as seen in Figures 8A-8B and described hereinafter in greater detail with respect to Figures 15-16, the hinged side panel section of Figure 5 is provided with a strut assembly to retain the side panel section in open position. In addition, the shelving arrangements of Figures 17 and/or 18 may be utilized in the Figure 5 embodiment. While not shown, an appropriate seal may extend around the opening in the side panel, similar to a trunk seal.

Figure 6 illustrates a four-door utility vehicle, such as a Chevy Suburban, with a hidden storage system incorporated between the rear side door and the rear of the vehicle. The utility vehicle indicated at 60 includes a storage box 61 and a hinged side panel section 62, which are constructed to extend over a wheel well 63 intermediate rear side door 64

and the rear end 65 of the vehicle, as described above. While no shelving is shown in Figure 6, one or more shelves of different types, such as shown in Figures 17 and 18, for example, may be installed in the interior of storage box 61. Also, as described above with respect to Figure 5,
5 lock/latch mechanisms and strut assemblies are incorporated to lock, release and retain the hinged side panel section 62. An appropriate moisture and dust seal is utilized about the edge of the hinged side panel section when closed, and the inner surface of the side panel section may be coated with insulation and/or sound absorbing materials. Also, appropriate structural supports are fixed to the inner surface of the hinged side panel section.
10

Figure 7 illustrates the hidden storage system incorporated into a two door sports utility vehicle, such as a Ford Explorer, Chevy Blazer, etc. The vehicle indicated at 70 includes a storage box 71 and a hinged side panel section 72 which extend over a wheel well 73 and are located intermediate a passenger side door 74 and a rear end 75 of vehicle 70. As in the embodiments of Figures 5 and 6, the storage box and/or hinged side panel section includes shelves, insulation/sound materials, supports, a lock/latch mechanism, and strut assemblies. Also, as described above and
15 in greater detail with respect to Figures 9-12 and 17-18, various configurations of the storage box and/or hinged side panel sections and shelving arrangements may be utilized.
20

Figures 8A and 8B illustrate rear views of two different vehicles, such as the utility and sports utility vehicles described above with respect to Figures 6 or 7, and illustrate hinged side panel sections on
25 each side of the vehicle, since each of the vehicles of Figures 5-7 may be provided with a hidden storage system on each side thereof. As shown, the

vehicles indicated at 80 and 80' include hinged side panel sections 81 and 81' adapted to close or open the interior of a storage box located on each side of the vehicle. The hinged side panel sections 81 and 81' are held in an open position by one or more strut assemblies 82 and 82' on each side of vehicle 80 and 80'. the strut assemblies 82 and 82' may be of the type described with respect to Figures 15 and 16, and may be insulated, heated or insulated and heated, depending on the environmental conditions of the location of the vehicle.

The vehicle may include a plurality of hinged side panel sections which may open upwardly, downwardly or sideways, and one or more of hinged side panel sections may be constructed on the interior thereof to form a work bench when opened. Various hinged panel section arrangements are schematically illustrated in Figures 9-12. While not illustrated, the hinged side panels have the same external contour as that of a similar vehicle without the hidden storage system. In other words, the hinged side panel sections or hinged fender/side panel sections have a contour corresponding to the remainder of the vehicle's side panels or fender/side panels. Thus, the only external differences of the Figures 9-12 embodiments are the vertical and/or horizontal cut lines which define the edges of the hinged side panel sections. While not shown, the side panel sections may be hinged to open sideways. The hinges, as pointed out above, are hidden from an external view of the side of the vehicle.

Figures 9-12 schematically illustrate modifications of the fender/side panels of the hidden storage system illustrated in Figures 5-8B. It is to be understood that in actual practice the embodiments of Figures 9-12 would be configured as described above to match the external contour of the fender/side panels, and the storage boxes would be

positioned within the vehicle as described above. Also, it is to be understood that a storage box could extend only along a section of the side panel which is hinged, and not the entire length of the side panel.

Figure 9 illustrates a split side panel arrangement generally indicated at 100 wherein a pair of longitudinal extending panel sections forming an upper panel section 101 and a lower panel section 102 are hinged to a storage box 103 formed over a wheel well 104 as indicated along horizontal lines 105 and 106, with the lower panel section 102 being configured as indicated at 107 to cooperate with the wheel well 104. As indicated by arrows 108 and 109, the upper panel section 101 and the lower panel section 102 are hinged whereby section 101 is raised and section 102 is lowered. While not shown, the upper panel sections would be provided with restraining struts, restraining type hinges, etc. This arrangement provides at least three advantages: 1) the lower panel section 102 may be utilized as a work shelf or bench, and 2) in case of strong winds, for example, the upper panel section is smaller and thus easier raised and lowered; and 3) only the upper or lower panel section may be utilized without having to raise the entire side panel. Also, the upper and lower panel sections would be provided with a latch and lock mechanism.

The Figure 10 embodiment differs from the Figure 9 embodiment in the configuration of the side panel sections, and corresponding reference numerals illustrate corresponding components. In this embodiment only one or both side panels can be hinged. In Figure 10, the split side panel arrangement generally indicated at 100' includes a pair of split side panel sections 101' and 102' which are hinged along horizontal lines 105' and 106' at the upper end thereof. The panel sections are configured to conform with the contour of a conventional side panel vehicle. Side panel

section 101' is shown in the raised or open position as indicated by arrow 108', while side panel section 102' is in the lowered or closed position. In this embodiment, only side panel section 101' may be hinged with the storage box 103 only extending the length of section 101'. In this
5 embodiment, each of the side panel sections 101' and 102' include a section 107' configured to cooperate with the wheel well 104 of storage box 103. While the side panels 101' and 102' are hinged to swing or open upwardly, they could be hinged along the lower ends, as side panel section 102 of Figure 9, whereby they could be lowered when opened, or hinged such that
10 one section opens upwardly and one section opens downwardly. Also, only side panel section 101', for example, may be hinged. The advantages of the Figure 10 embodiment is in the use of the storage area in front of the wheel well or in back of the wheel well, or both. Also, with only one section of the side panel open, there is less resistance to winds and can
15 be easily opened and closed compared to the full side panel. While not shown, the side panel section 101', and if hinged the side panel section 102', would be provided with support or retention struts if opened upwardly or with retaining means, similar to that of a conventional pickup tailgate, if hinged to open downwardly. A latch and lock arrangement, while not
20 shown, would be provided for the hinged panel section(s). Also, the side panel sections are configured to conform with the contour of the desired side panel bed.

Figure 11 illustrates another arrangement involving three movable side panel sections and components corresponding to those of Figure 9, and
25 are given corresponding reference numerals. As shown, the three-way split side panel arrangement generally indicated at 100' comprises a storage box 103 built over a wheel well 104, and provided with three (3) hinged side

panel sections 110, 111 and 112 which are hinged along horizontal lines indicated at 113, 114 and 115 respectively. As indicated by arrows 116, 117 and 118, side panel sections 110 and 112 open upwardly while side panel section 111 opens downwardly. However, side panel section 111 may be hinged to open upwardly, and all three sections may be hinged on a common hinge. In addition, sections 110 and 111 may be hinged at a lower end so as to open downwardly. In this embodiment, the center side panel section 111 may be used as a work table, and any of the storage box sections above, in front of, or behind the wheel well may be utilized. If desired, only one or two of the three sections may be hinged and provided with a storage box therebehind, whereby storage would only be in one or two sections adjacent the wheel well.

Figure 12 illustrates a modification of the Figure 11 side panel arrangement and differs in utilizing five (5) side panel sections instead of three, with two of the sections being split. Corresponding reference numbers are given for corresponding components. The difference between Figure 11 and Figure 12 is that the two end sections of the side panel are split as indicated at 110'-110" and 112'-112", with panel sections 110' and 112' opening upward and panel sections 110" and 112" opening downward as indicated by arrows 116-116' and 118-118', with lower panel sections 110" and 112" being hinged along lines 113' and 115'. As in the Figure 11 arrangement, the central side panel section 111 can be hinged to open upwardly instead of downwardly as shown. In this embodiment any or all of panel sections 110", 111 and 112" can be utilized as a work table or bench. Also, by the arrangement of Figure 12, there is access to various sections of the storage box 103 without the need to expose the entire interior of the storage box. As described above, the individual side panel

sections are each provided with a latch/lock system and, if desired, the latch/lock system may be constructed to release individual or all of the side panel sections, either mechanically or electrically, as described below.

5 The side panel section arrangements of Figures 9-12 enable, if desired, the length and location of the storage box located behind the hinged sections to be varied. For example, with the Figure 10 arrangement, the storage box need only extend half the length of the bed, providing side panel section 102' was not hinged. Also, with the panel section
10 arrangement of Figure 9, the storage box may need only extend along the body so as to be located above the level of the wheel well, provided the lower side panel section 102 is not hinged. As readily seen from the arrangements of Figures 11 and 12, certain side panel sections need not be hinged and the storage box therebehind may be constructed only to extend
15 the length or depth of the desired hinged side panel sections. Regardless of the side panel section arrangement a user may desire, the hinged side panels must conform to the contour of the overall side panel configuration. It is recognized that the external appearance of the overall side panels of the body will show vertical or horizontal cuts
20 defining the various side panel sections involved when sections of the side panels are hinged as illustrated in Figures 9-12. While it is preferable to hinge the side panel sections to open upwardly or downwardly, they can be hinged to open sideways.

 Figures 13 and 14 schematically illustrate embodiments of a
25 mechanical type and an electrical type of latch/lock mechanism. Since the latch/lock mechanism is not visible from an external view of the vehicle, such is considered to be a hidden mechanism and is so defined herein.

Since the latch/lock mechanism is not visible from an external view of the vehicle, such is considered to be a hidden mechanism and is so defined herein. In the embodiment of Figure 13, the latch mechanism is cable actuated. As shown, a vehicle indicated at 120 containing a hidden storage system generally indicated at 121 which includes a storage box as above described, and which includes at least one hinged side panel 122, and provided with an end gate or rear door 123, includes a lock release mechanism generally indicated at 124, having a keyed or keyless lock, not shown, and located at the rear of the storage system and spaced as indicated at 125 from the rear door 123. By this arrangement, the lock release mechanism 124 can be actuated from the inside of the vehicle without opening the end gate or door 123. The latch mechanism constructed of cooperating components are indicated at 126-126', 127-127', 128-128', and 129-129', with components 126, 127, 128 and 129 secured to the vehicle 120 or storage box within the enclosed area, while cooperating components 126', 127', 128' and 129' are secured to the inner and lower edge of the hinged side panel 122, such that when the side panel 122 is lowered the components of the latch mechanism interconnect. The components 126-129 each include a movable release member 130, which is actuated by a cable 131 connecting the lock release mechanism 124 via a lever 132 of the lock mechanism 124. Thus, upon movement outwardly of lever 132 as indicated by arrow 133, the cable 131 activates the movable release member 130, where latch components 126'-129' are released from components 126-129, and the hinged side panel 122 can be raised as illustrated. To re-secure the side panel 122 when lowered, the lever 132 of lock release mechanism 124 is moved inwardly as indicated by arrow 134 whereby the activation cables 131 and release member 130 enable latch mechanism components 126-129 and

126'-129' to be reengaged for retaining the side panel 122 in a secured closed condition. Various types of mechanical lock/latch mechanisms are commercially available and thus a detailed description of a specific embodiment is deemed unnecessary. However, the lock/latch mechanism should be constructed to prevent the side panel 122 from being easily pried open. Some known lock/latch mechanisms require a 1500 pound pry to open same.

Figure 14 illustrates an electrically activated lock/latch mechanism, and is constructed similar to that of Figure 13 except that electric solenoids and electric leads replace the activation cables of Figure 13 and the lock release mechanism requires only a push button or key to actuate the latch mechanism via the solenoids. Also, the lock mechanism may be remotely controlled, such as by well known vehicle security key/lock systems. As shown in Figure 14, the lock release mechanism 124' is located at the rear of the storage box and spaced from the end gate or rear door 123 as indicated at 125. Cooperating latch mechanisms 126-126', 127-127', 128-128' and 129-129' are mounted on bed 121 and side panel 122 as described above in Figure 13. Each of latch mechanism components 126, 127, 128 and 129 are provided with a solenoid 136, 137, 138 and 139 which are connected to lock release mechanism 124' via electrical leads 140, 141, 142, 143 and 144. To release the latch mechanism to enable opening of the side panel 122, the lock release mechanism 124' is activated, such as by a push button, key, or combination, as known in the art, which activates solenoids 136-139 thereby moving movable members 130 to allow latch components 126'-129' to be released from latch components 126-129, allowing side panel 122 to be

opened. Since solenoid activated lock/latch mechanisms are well known in the automotive art, further description is deemed unnecessary.

While Figures 13 and 14 illustrate embodiments of the lock/latch mechanism with the lock release mechanism 124' located at the rear of the storage box, the lock release mechanism can be located at the front of the storage box, or if an electrical lock/release system is used, as in Figure 14, the lock release mechanism 124' can be located in the glove box, behind the driver's seat, or elsewhere in the vehicle. If desired, a key actuated lock release mechanism can be installed in a hinged side panel section but such would be visible from an external view of the vehicle and therefore would not be desirable in that the hidden aspect of the storage system would be reduced.

While the Figures 13-14 embodiments have illustrated the use of four (4) latch mechanisms, that number may be less for a single hinged side panel. Where the hinged side panel is composed of side panel sections, as in Figures 9-12, each hinged section should include one or more latch mechanisms, either mechanical or electrical. Also, where the side panel sections are hinged to open downwardly, the location of the cooperating latch mechanism components may be different and, for example, such may be secured to the sides of the hinged side panel sections and to a cooperating location on the storage box.

As pointed out above, the upwardly opening side panels are provided with means for retaining same in open position, such as by conventional torsion springs or strut assemblies, widely used in the automotive field for retaining open rear windows or doors. However, hinges which include spring or mechanically biased means, for example, are also commercially available which are constructed to retain a door or window

open, and thus could be utilized in the hinged side panels. The use of strut assemblies is generally preferred, but struts have disadvantages when operating in extreme temperature conditions, either hot or cold. This problem is resolved by the strut assemblies illustrated in Figures 15 and 16, wherein insulation and/or heating therefor is provided. Figure 15 illustrates a convention strut assembly with insulation about the body member, while Figure 16 additionally illustrates an electrical heating strip for a conventional strut. However, the heating strip of Figure 16 can be incorporated into the insulated strut assembly of Figure 15. As shown in Figures 15 and 16, the strut indicated at 150 comprises a body member 151 having a connector member 152 at one end, and a plunger member or rod 153 having a connector member 154 reciprocally mounted in body member 151, and which is sealed in member 151 as known in the art. The body member 151/rod 153 may be provided with a conventional fluid or air arrangement which allows the rod 153 to be moved in or retained in the body member 151. In Figure 15, the body member 151 is provided with a layer 155 of insulation material and a protective layer or sleeve 156 about the insulation layer. However, depending on the composition of the insulation layer 155, the protective sleeve or layer 156 may not be needed. In Figure 16, which is constructed as in Figure 15, the body member 151 is additionally provided with one or more electrical heating strips 157 (only one shown), which would be electrically connected by electrical leads 158 via a thermostat 158' to the power supply 159 of the vehicle on which the strut is utilized. The electrical heating strip(s) 157 is positioned between the body member 151 and the insulation layer 155, whereby a heated/insulated strut is provided to withstand either

extremely high or extremely low temperatures. However, the body member 151 may be provided with one or more heating strips, if desired.

The hidden storage system is constructed such that a variety of storage shelves and/or storage compartments may be positioned in the storage boxes on either side of the bed. The storage boxes are provided with means by which shelves or compartments may be installed to fit a user's needs. The storage boxes may include areas of sufficient length and height for the storage of skis, ski poles, ski boots, and ski clothing, or for the storage of golf club bags and associated equipment or clothing, as well as for various tools, parts, etc. Also, the storage boxes may be designed to include areas for the storage of shopping purchases whereby such are secured from view - a truck with a trunk.

Figure 17 schematically illustrates a shelf/storage compartment arrangement for tools, parts, etc. The shelves and storage compartments may be mounted so as to be movable (slideable) or adjustable. As shown in Figure 17, a storage box such as illustrated at 51 in Figure 5, here generally indicated at 170, and which includes a wheel well section 171, is provided with different size and/or length shelves 172, 173, 174, 175, 176 and 177. The storage box 170 is provided with upwardly extending lips or members 178 and 179 which form open boxes or compartments 180 and 181. However, the storage box 170 may be constructed to provide a flat surface at the bottom by elimination of the upwardly extending members 178 and 179. The storage box 170 of Figure 17 additionally includes six compartments or drawers, indicated at 182, for small parts, etc. Compartments 180 and 181 are provided with openings 183 in which are positioned drain/air relief valve assemblies 184, described in detail hereinafter with respect to Figure 19.

One of the side panels of Figures 5-7 is shown in detail in Figure 18 wherein a side panel 199 is illustrated in an open position and retained by a gas lift or strut assembly 200 (only one shown) which may be constructed as shown in Figures 15 and 16. As seen in Figure 18, the side panel assembly 195 additionally includes a storage box 201 into which are slideably mounted shelves or box shelves 202 and 203, which are supported by a common support member 204 and a pair of end support members 205 (only one shown). The inner ends of slideable shelves 202 and 203 slide on members 206 secured to the wheel well 207, while the outer ends of shelves 202 and 203 slide on member 208 (only one shown) secured to ends of the storage box 201. The storage box 201 is additionally provided with shelf supports 209 and 210 on which a shelf, not shown, can be mounted whereby the height thereof can be adjusted for various uses. If desired, support members similar to member 205 can be located at 209 or 210 to enable the uses of additional sliding shelves. Also, vertical adjustable shelf supports may be utilized.

Figure 19 illustrates an embodiment of a drain/air relief valve assembly indicated generally at 184 in Figure 17 which is mounted in an opening 183 in compartments 180 and 181 of storage box 170. The valve assembly 184 is mounted in opening 183 of compartment 180, for example, by a tub or member 185 having an opening 186 and is secured in opening 183 at the outer periphery thereof, and may be constructed of metal, a composite, or plastic, for example. Valve assembly 184 includes a housing 187 or body members 188 and 189 secured together as by a threaded connection, not shown, with lower body member 188 having a groove 190 therein into which

tub 185 extends, whereby the housing 187 is retained in opening 186 of tub 185. The housing 187 may be constructed of EPDM or rubber, for example. Body members 188 and 189 are provided with aligned openings 191 and 192, with a plug or member 193 having a pull grip 194 extending into opening 192. Opening 191 in lower body member 188 is provided a valve 195 having a flexible member 196 while upper body member 189 is provided with a plurality of radially extending openings 197. Flexible member 196 may be constructed of rubber, for example. Upon raising the plug 193 via the pull grip 194, water and/or air within compartment 180 of storage box 170 flows through radial openings 197 and moves downwardly (opens) flexible member 196 of valve 195, as illustrated by flow arrows 198. With the plug 193 in place, as shown in Figure 19, air or moisture will not pass upwardly due to seating of flexible member 196 of valve 195.

While specific embodiments of the hidden storage system in accordance with the present invention have been described and/or illustrated, such are not intended to be limiting. For certain vehicles, such as the conventional three-door van, only one side of the vehicle would incorporate a hidden storage arrangement, while other vehicles may include a hidden storage on both sides. The length, depth and height of the storage box or boxes and the associated hinged side panel section(s) may vary with the configuration of the vehicle (two door or four door), and if it has windows along the side. Also, depending on the intended use of the vehicle, two or more hinged side panel sections may be used with single or plural storage boxes. Thus, it has been shown that the present invention provides hidden storage for vehicles, particularly vans and utility/sports utility vehicles, with only very minor alteration of the

The vehicle can be modified to incorporate the hidden storage, a conversion method, or the hidden storage can be incorporated via an

assembly line manufacture of the vehicle or installed utilizing a modular assembly approach. Modifications and changes may become apparent to those skilled in the art, and it is intended that the invention be limited only by the scope of the appended claims.

What Is Claimed Is:

1. A hidden storage system for a vehicle having side panels and which does not substantially alter the external appearance of the vehicle, comprising:

at least one storage box having an interior mounted on at least one side of said vehicle;

at least one section of a side panel on at least said one side of said vehicle being hinged, whereby same can be opened to expose the interior of said storage box and closed to cover the interior of said storage box;

at least one hidden latch mechanism mounted to releasably secure said at least one hinged section of said fender/side panel; and

lock means for actuating said at least one latch mechanism.

2. The hidden storage system of Claim 1, wherein said vehicle includes wheel wells, and wherein said at least one storage box covers at least one of said wheel wells and extends forward and rearward therefrom.

3. The hidden storage system of Claim 1, wherein said at least one storage box is constructed to extend along at least a section of the floor of said vehicle.

4. The hidden storage system of Claim 1, wherein said latch mechanism is hidden and includes a plurality of cooperating latch members adapted to be mounted on said storage box and said hinged section of said side panel.

5. The hidden storage system of Claim 1, wherein said lock means is selected from the group consisting of mechanically activated means and electrically activated means.

6. The hidden storage system of Claim 1, wherein said at least one storage box is provided with at least one shelf in the interior thereof.

7. The hidden storage system of Claim 1, wherein each side of said vehicle is provided with at least one storage box having an interior, at least one hinged side panel section, and at least one latch mechanism.

8. The hidden storage system of Claim 7, wherein the latch mechanism on each side of said vehicle has a separate lock means.

9. The hidden storage system of Claim 1, wherein said lock means is positioned at an end of said at least one storage box.

10. The hidden storage system of Claim 1, additionally including at least one strut assembly operatively connected to retain said at least one hinged section of said side panel in a raised position.

11. The hidden storage system of Claim 10, wherein said at least one strut assembly is provided with means selected from the group consisting of insulating means, heating means, and heating and insulating means.

12. The hidden storage system of Claim 1, wherein said side panel additionally includes at least another section thereof which is hinged such that it can be lowered or raised to expose the interior of said storage box.

13. The hidden storage system of Claim 12, wherein said side panel includes at least two sections hinged to enable raising each, lowering each, or raising one and lowering the other.

14. The hidden storage system of Claim 1, additionally including at least one drain/air relief valve assembly mounted in said at least one storage box.

15. In a vehicle having side panels, a hidden storage system, comprising:

at least one hinged side panel section,

at least one storage box having an interior located adjacent

5 said hinged side panel section, and

a lock/latch mechanism for said at least one hinged side panel,

said hidden storage system being constructed to not substantially alter the external appearance of the side panels of the
10 vehicle.

16. The hidden storage system of Claim 15, wherein said hinged side panel section is hinged to open upwardly or downwardly.

17. The hidden storage system of Claim 15, additionally including means for retaining said hinged side panel section in an open position.

18. The hidden storage system of Claim 15, additionally including at least one shelf in the interior of said storage box.

19. The hidden storage system of Claim 15, wherein said storage box and said hinged side panel section extend along a length of said vehicle intermediate a door and a rear end of said vehicle.

20. In the vehicle of Claim 15, a hidden storage system located on each side of said vehicle.

21. The hidden storage system of Claim 15, additionally including at least one drain/air relief valve assembly mounted in said at least one storage box.

22. A method for producing a hidden storage system in a vehicle having side panels with only minor alteration of the external appearance of the vehicle side panels, said method being selected from the group consisting of assembly line fabrication, modular fabrication and assembly, and retrofit of an existing vehicle.

23. A method of automatically relieving air and providing draining in a storage compartment, comprising:

forming an opening in the storage compartment, and mounting a drain/air relief valve assembly in the opening.

Abstract Of The Disclosure

A hidden storage for vehicles such as vans and utility/sports utility vehicles without altering the external appearance of the vehicle. The hidden storage is located adjacent one or both sides of the vehicle between a rearmost side door and the rear of the vehicle. The hidden storage is accessible only via one or more hinged side panel sections of the vehicle, and access to the interior of the vehicle does not provide access to the hidden storage area. The hidden storage is provided by a storage box secured to the side of the vehicle and the interior of the storage box is only accessible through opening of an associated hinged section of the side panel of the vehicle, which can be locked shut.

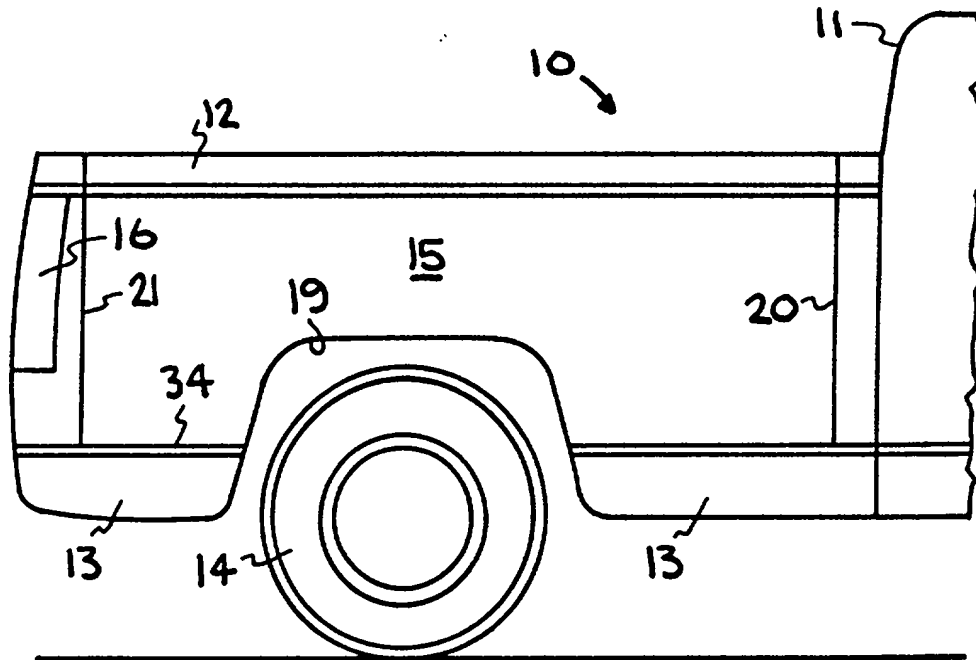


FIG. 1

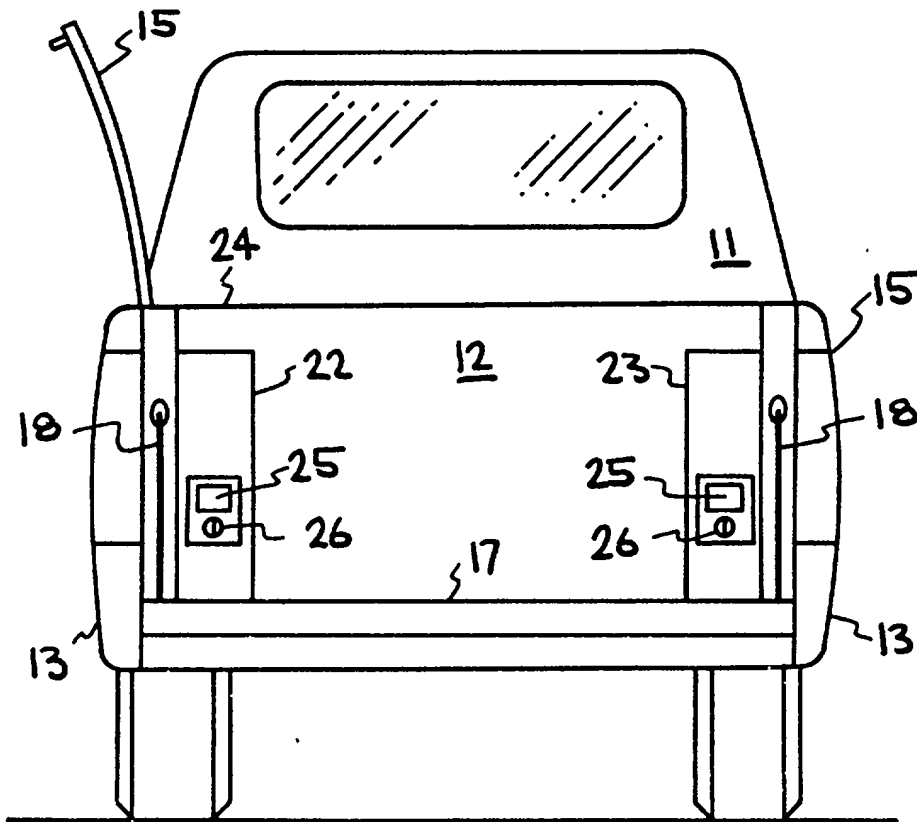


FIG. 2

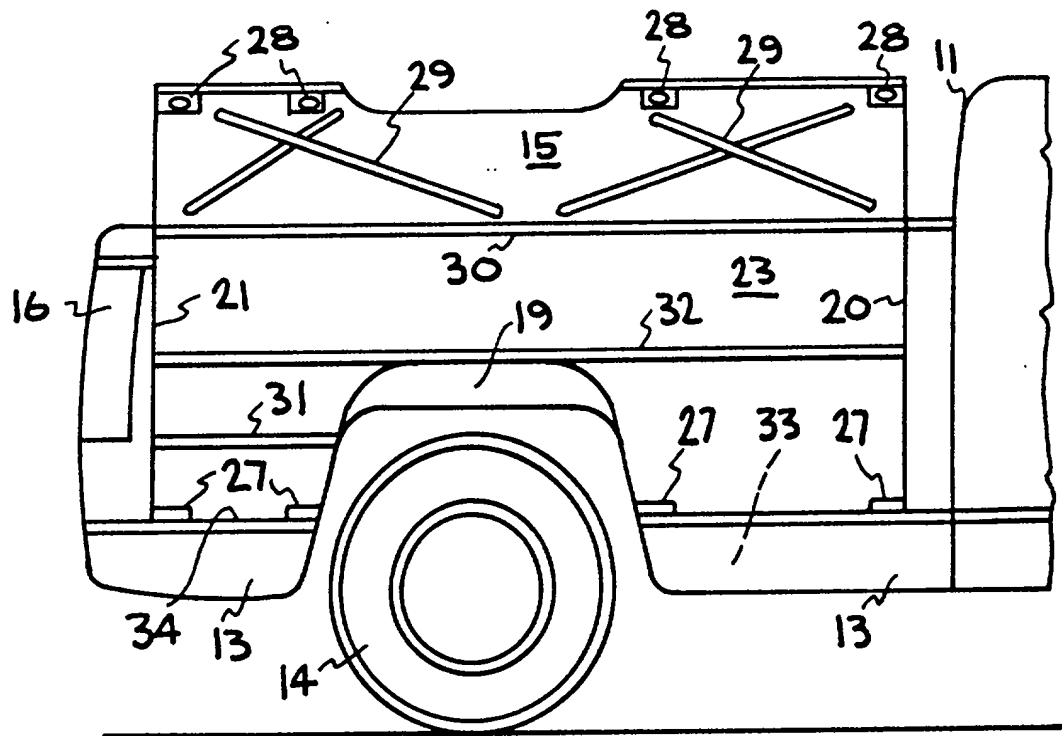


FIG. 3

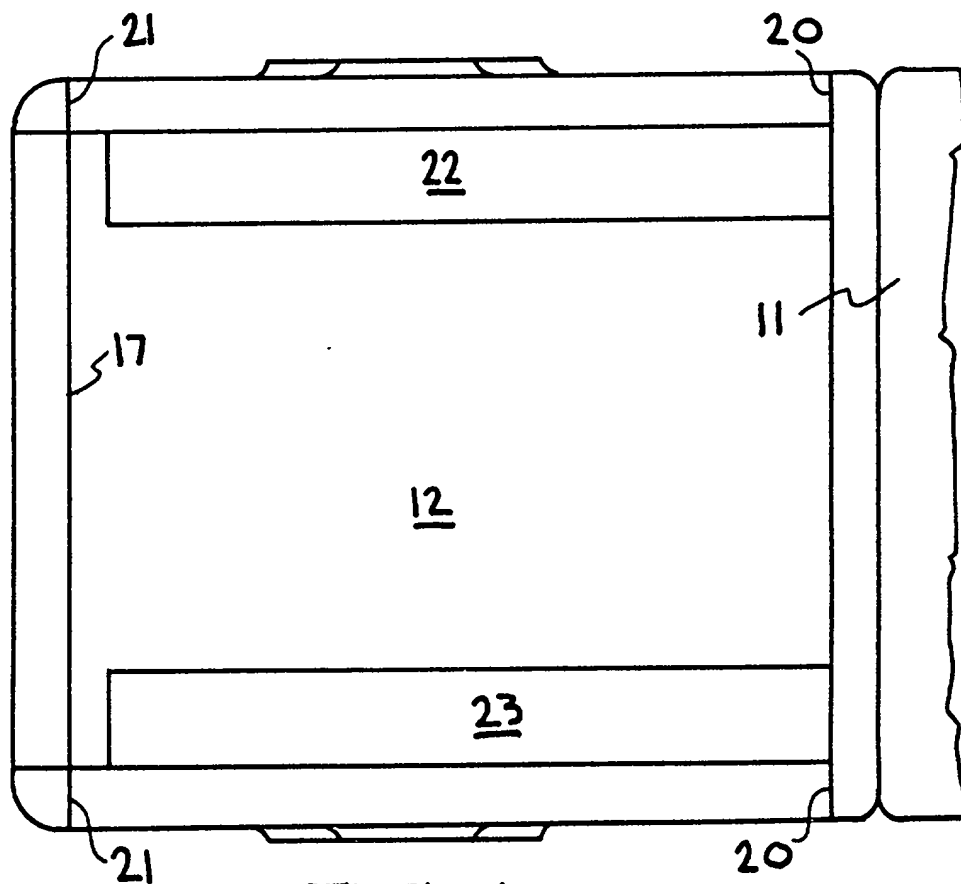


FIG. 4

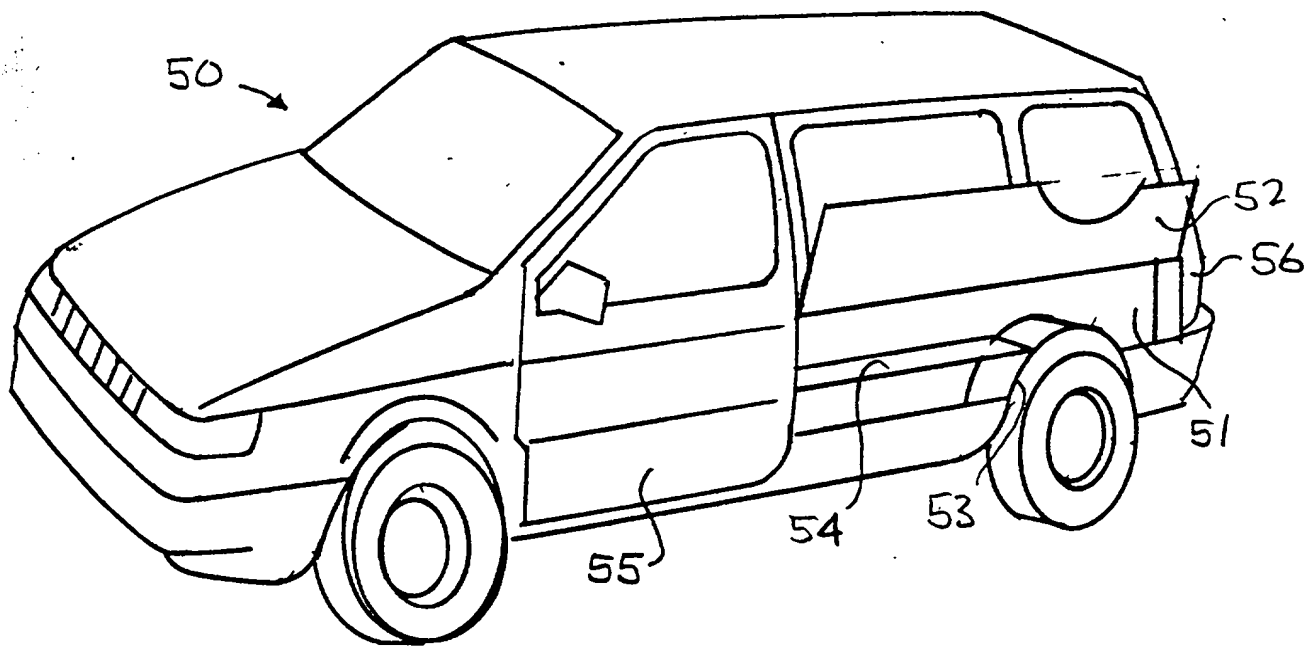


FIG. 5

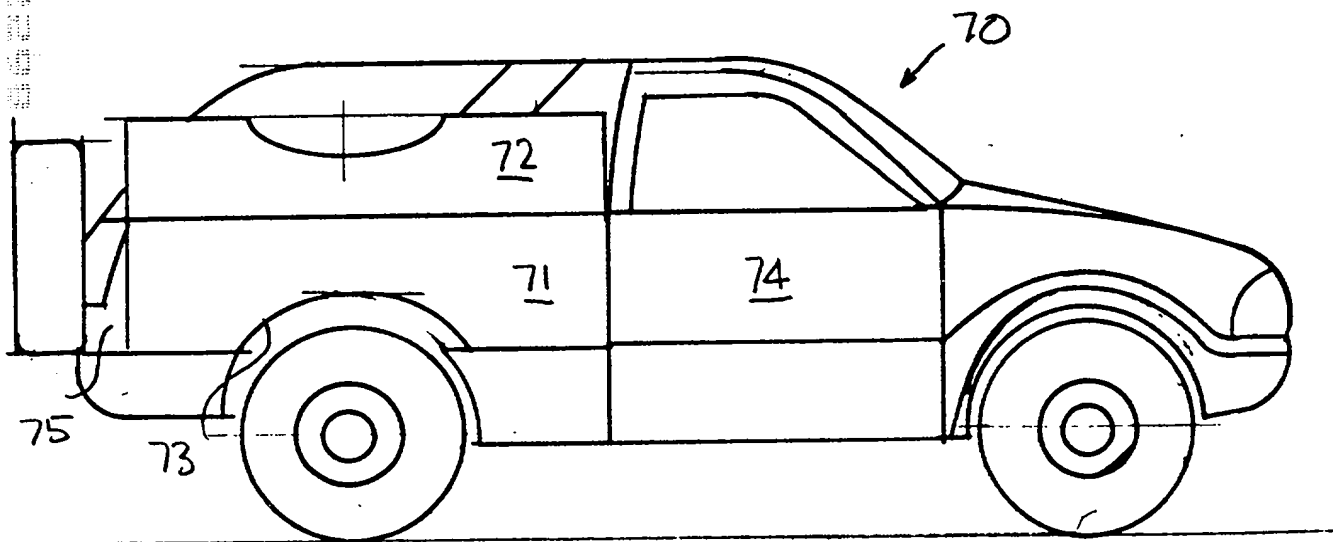


FIG. 7

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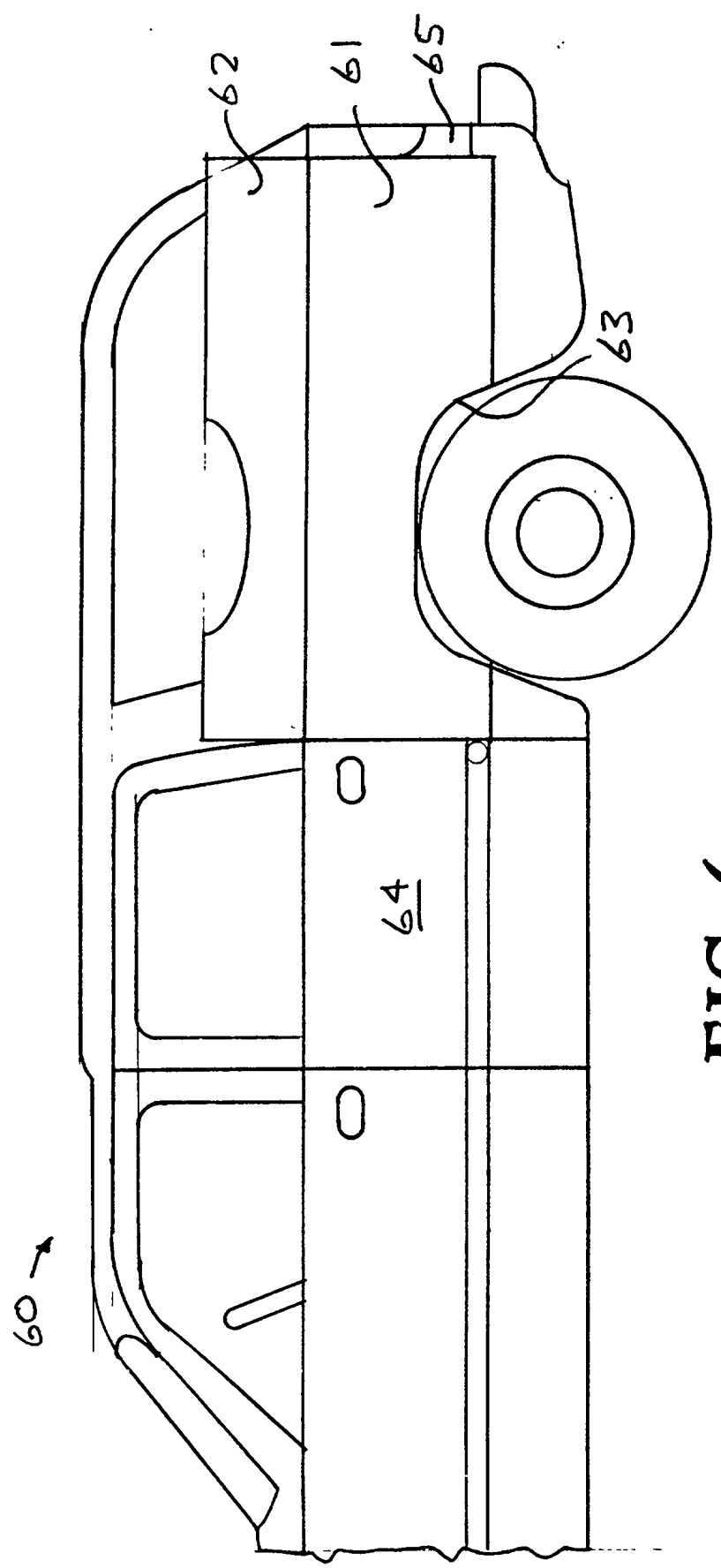


FIG. 6

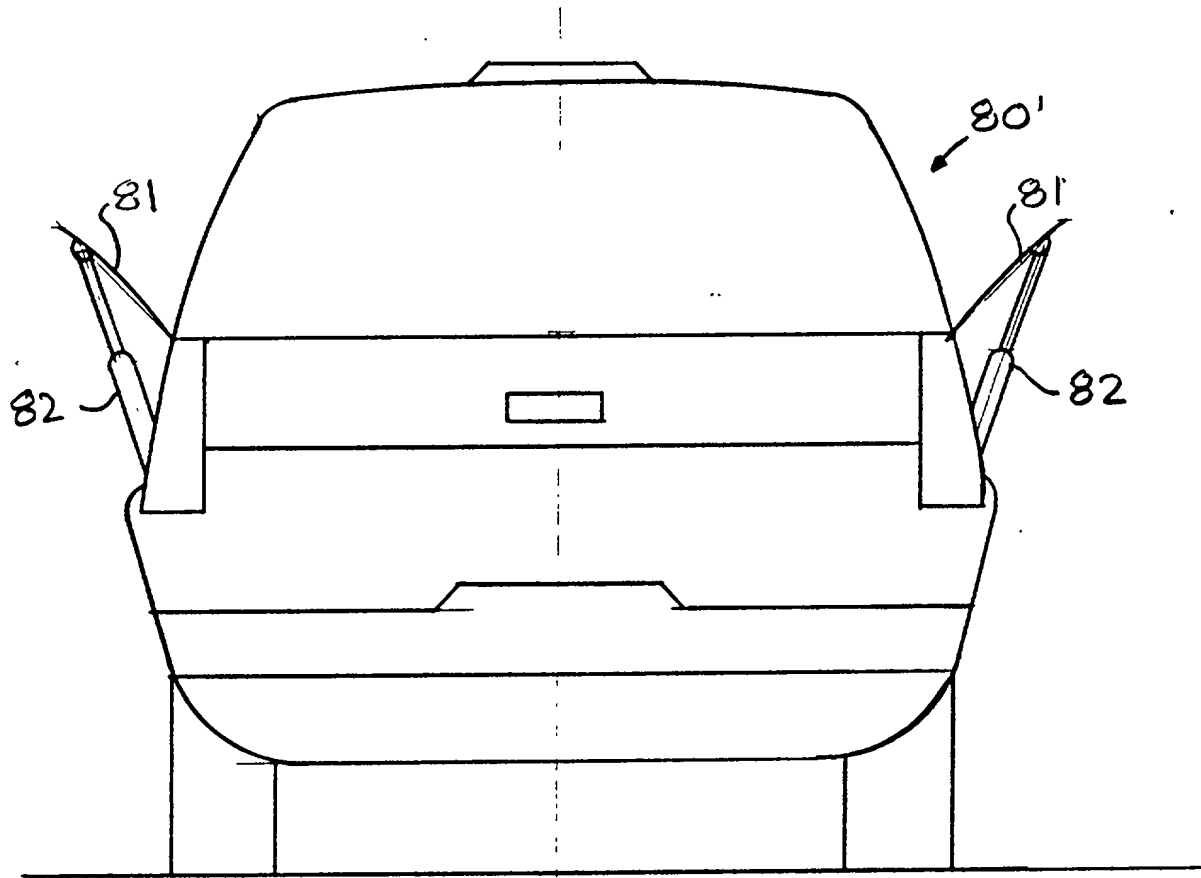


FIG. 8A

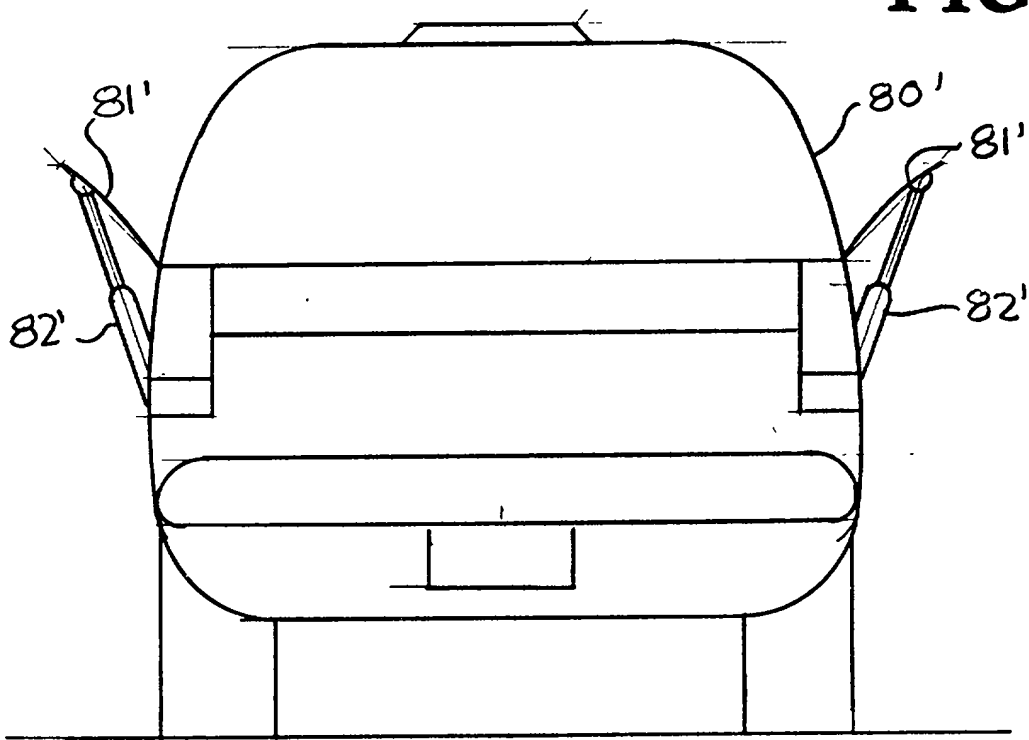
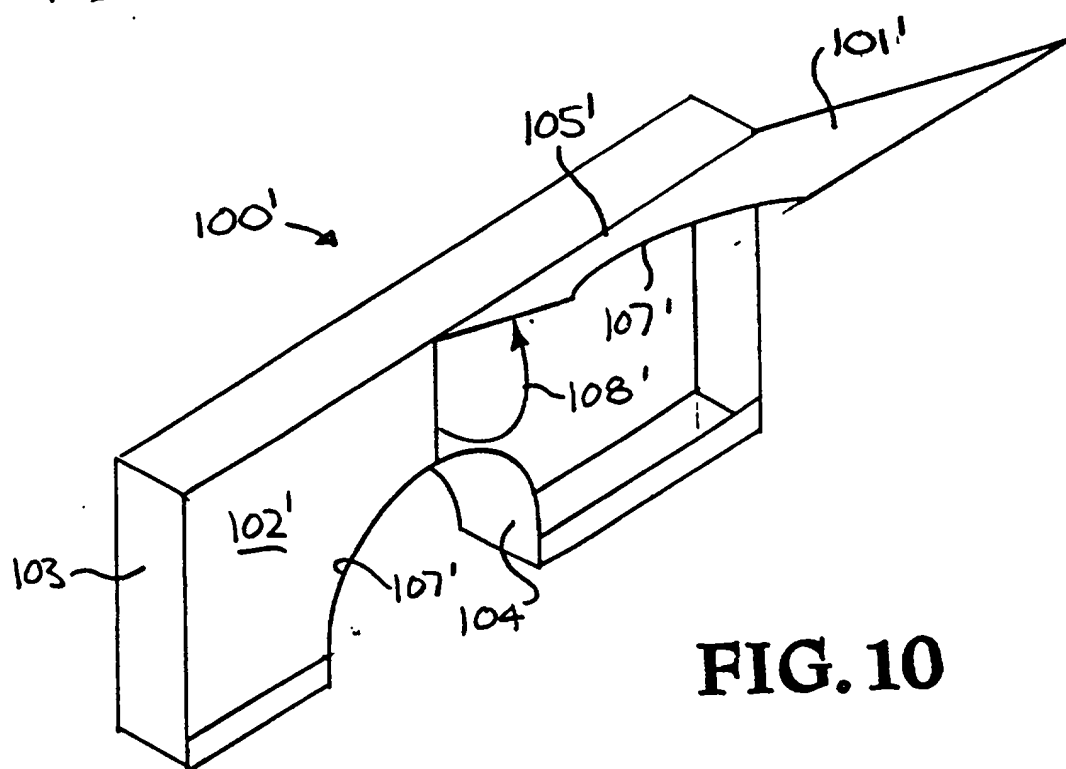
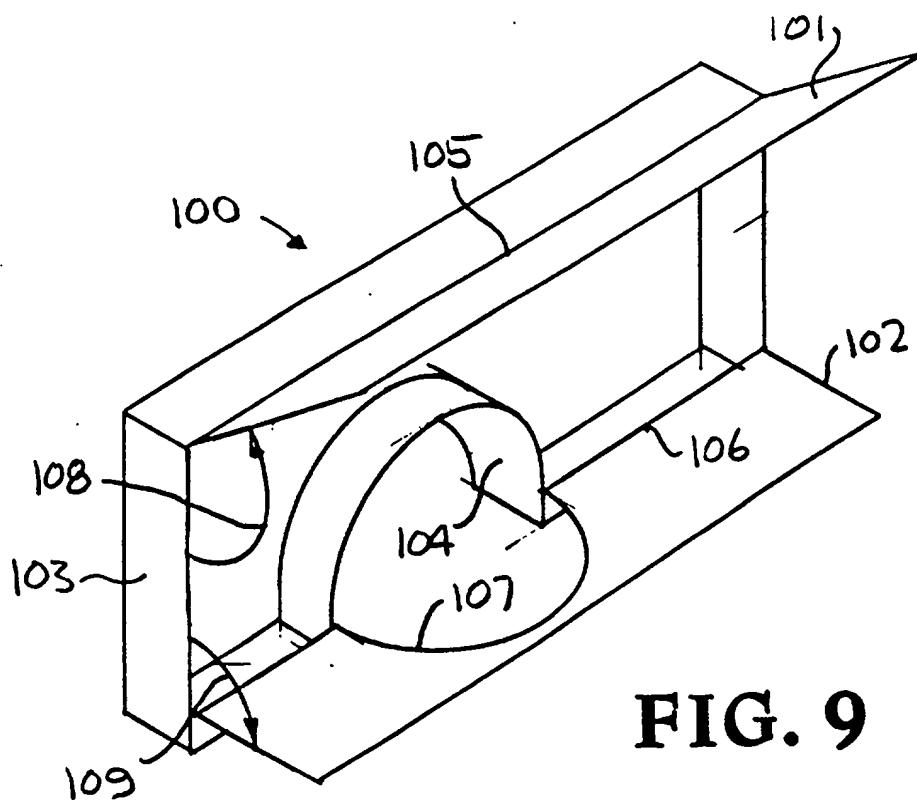


FIG. 8B



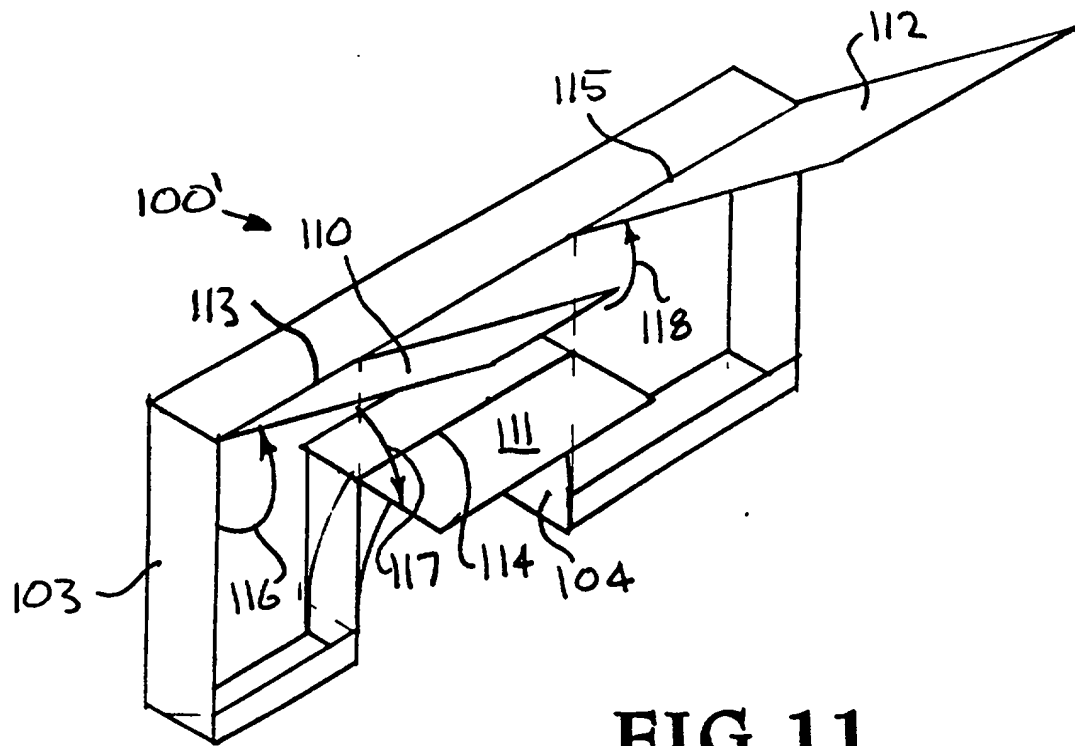


FIG. 11

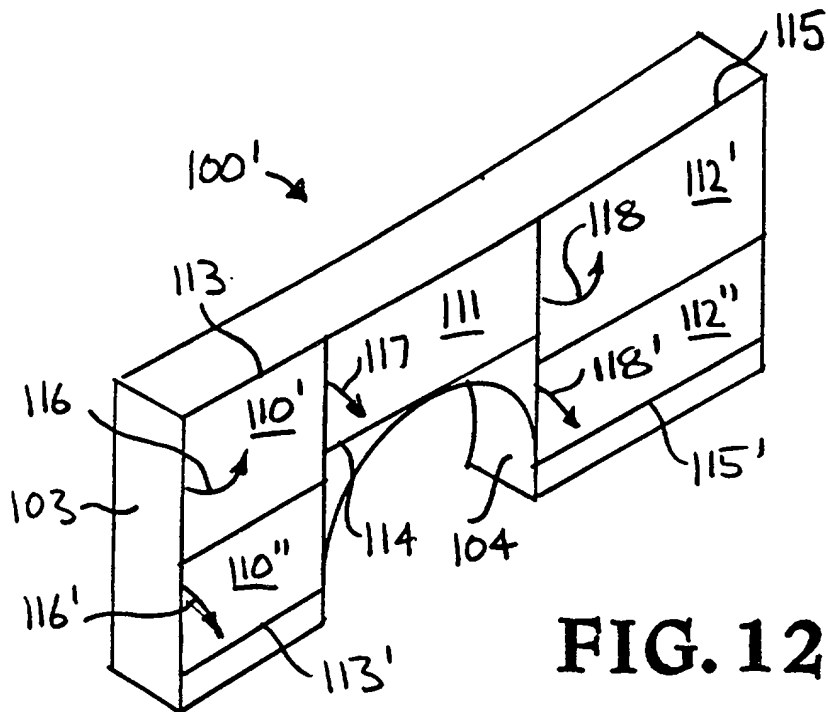


FIG. 12

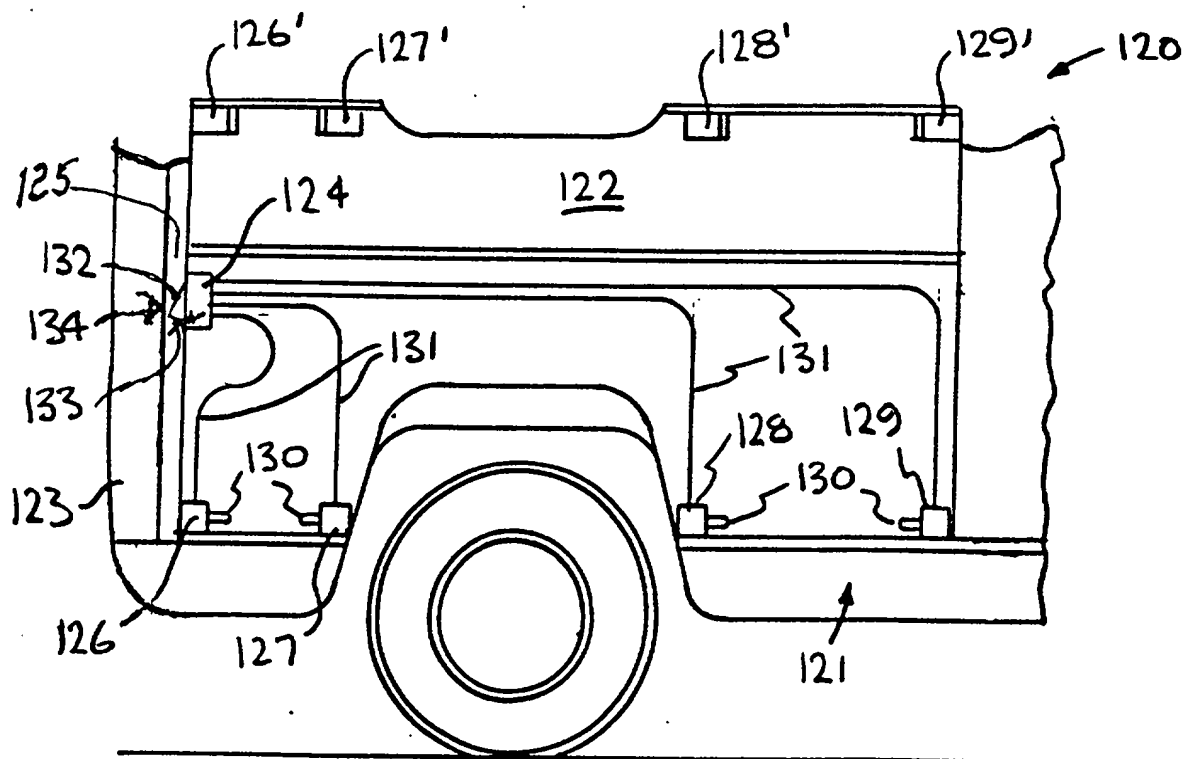


FIG. 13

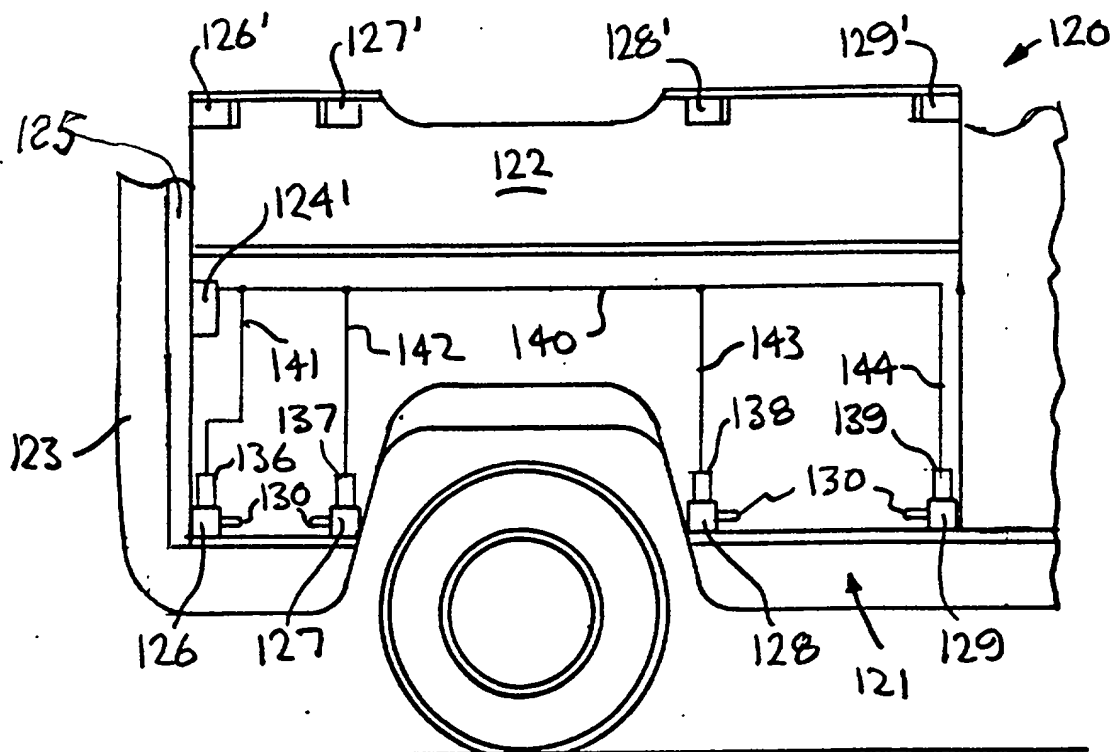
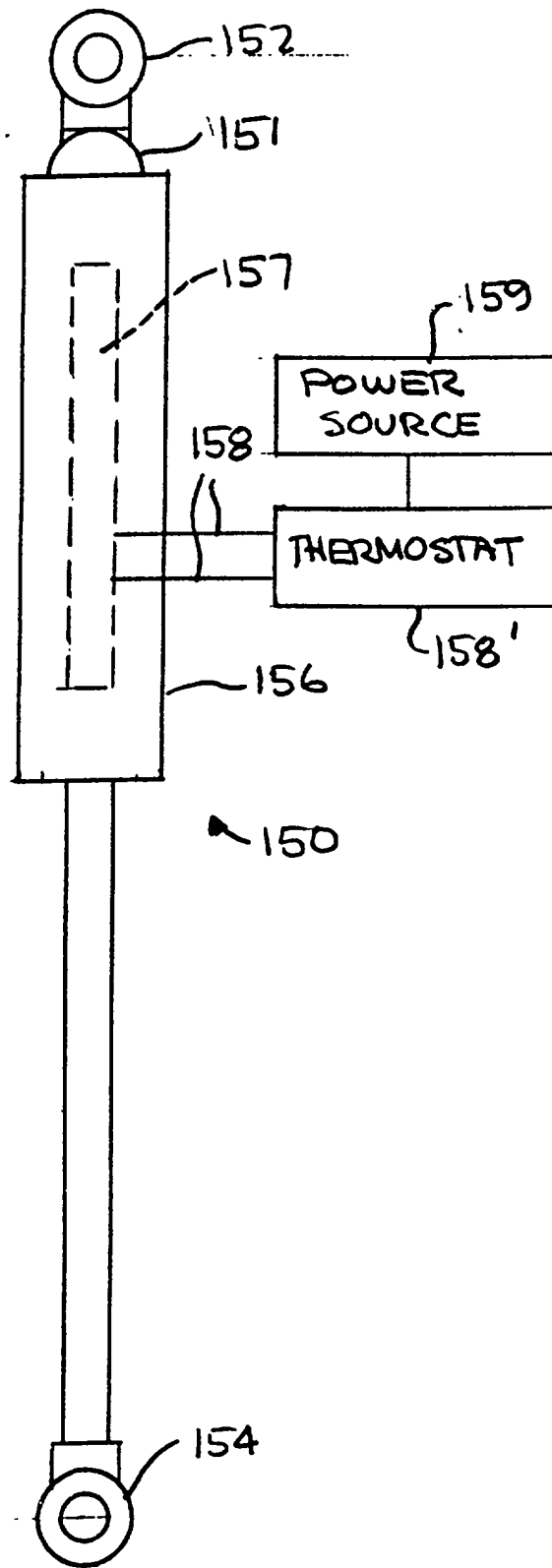
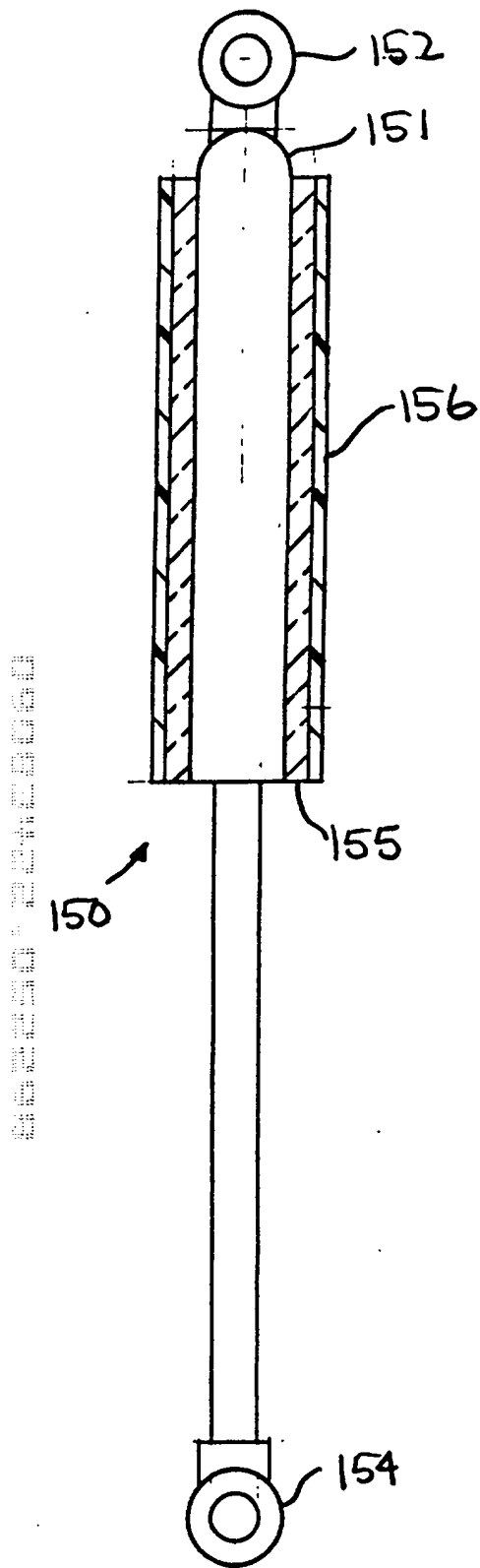


FIG. 14



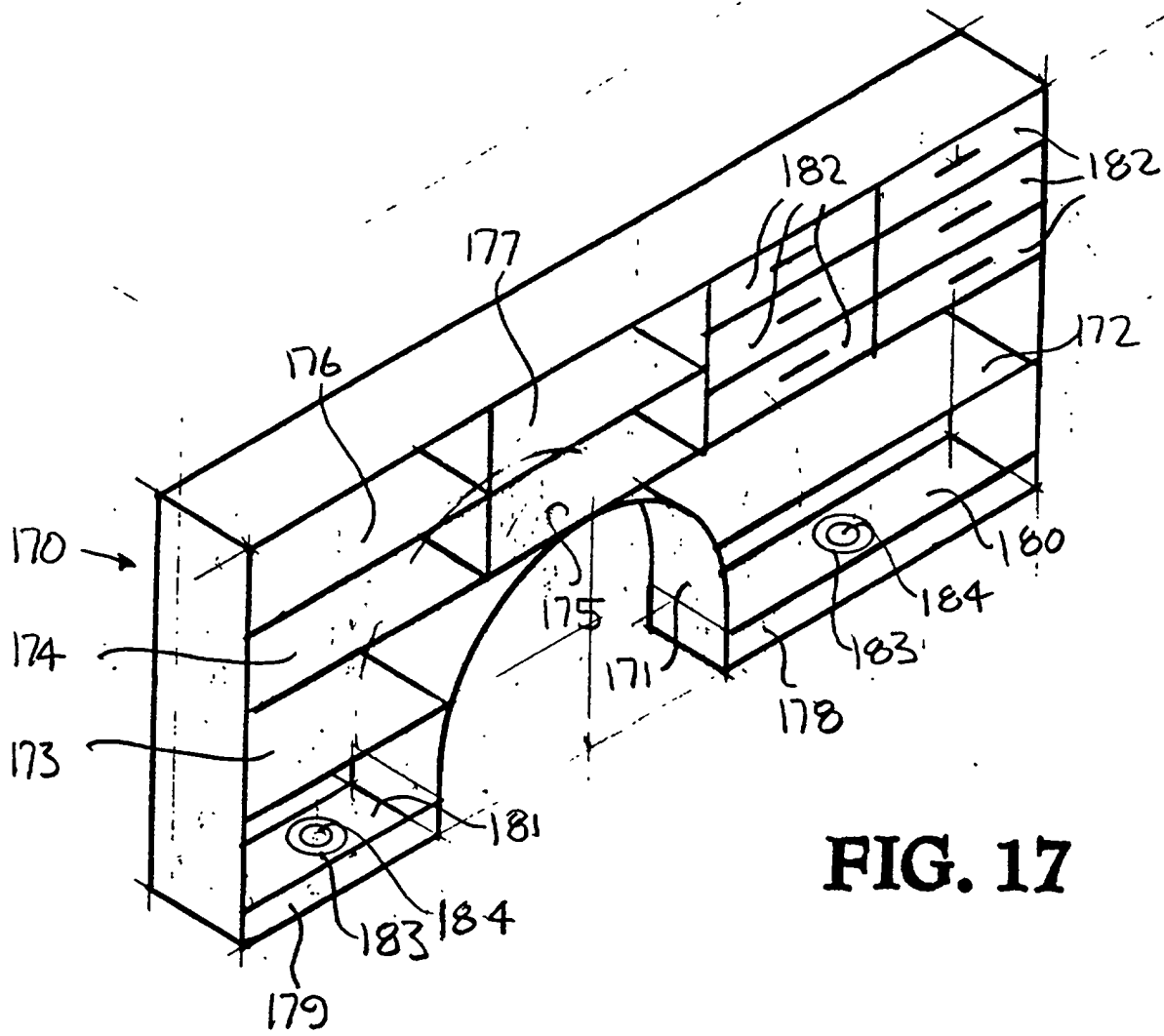


FIG. 17

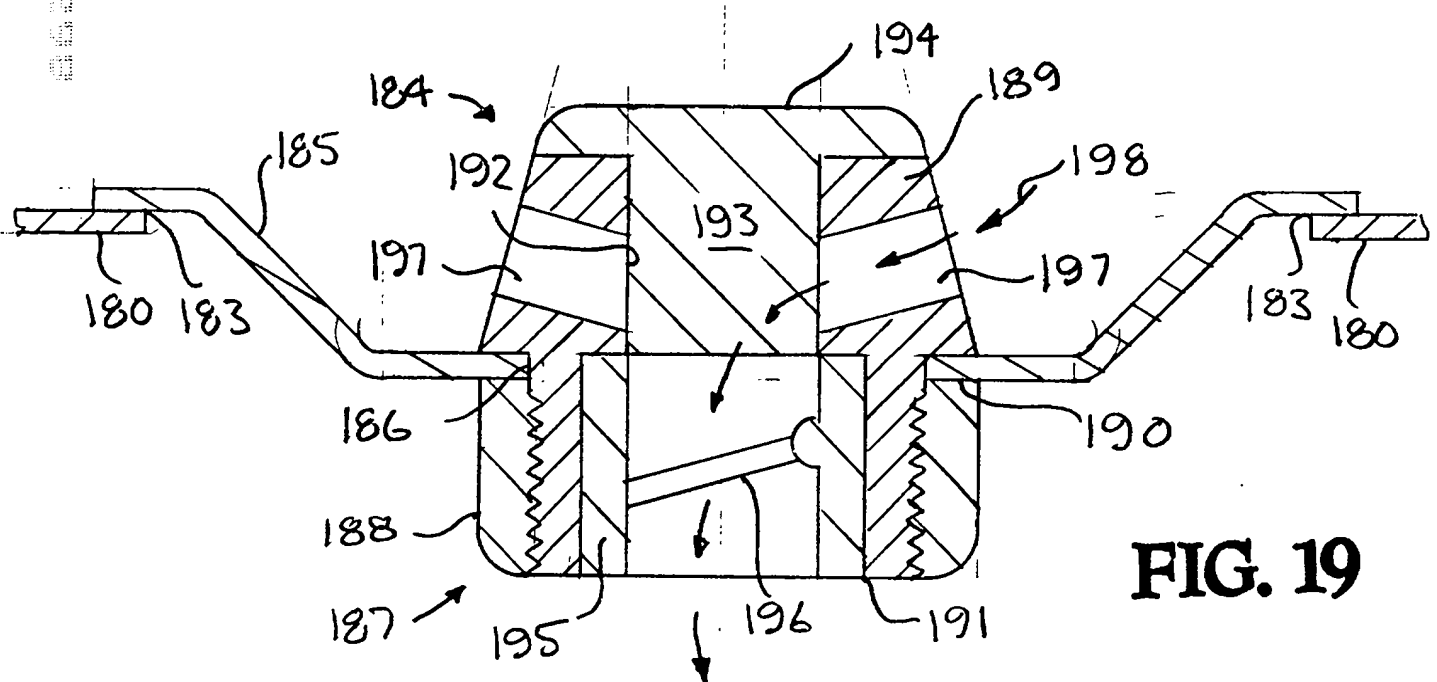


FIG. 19

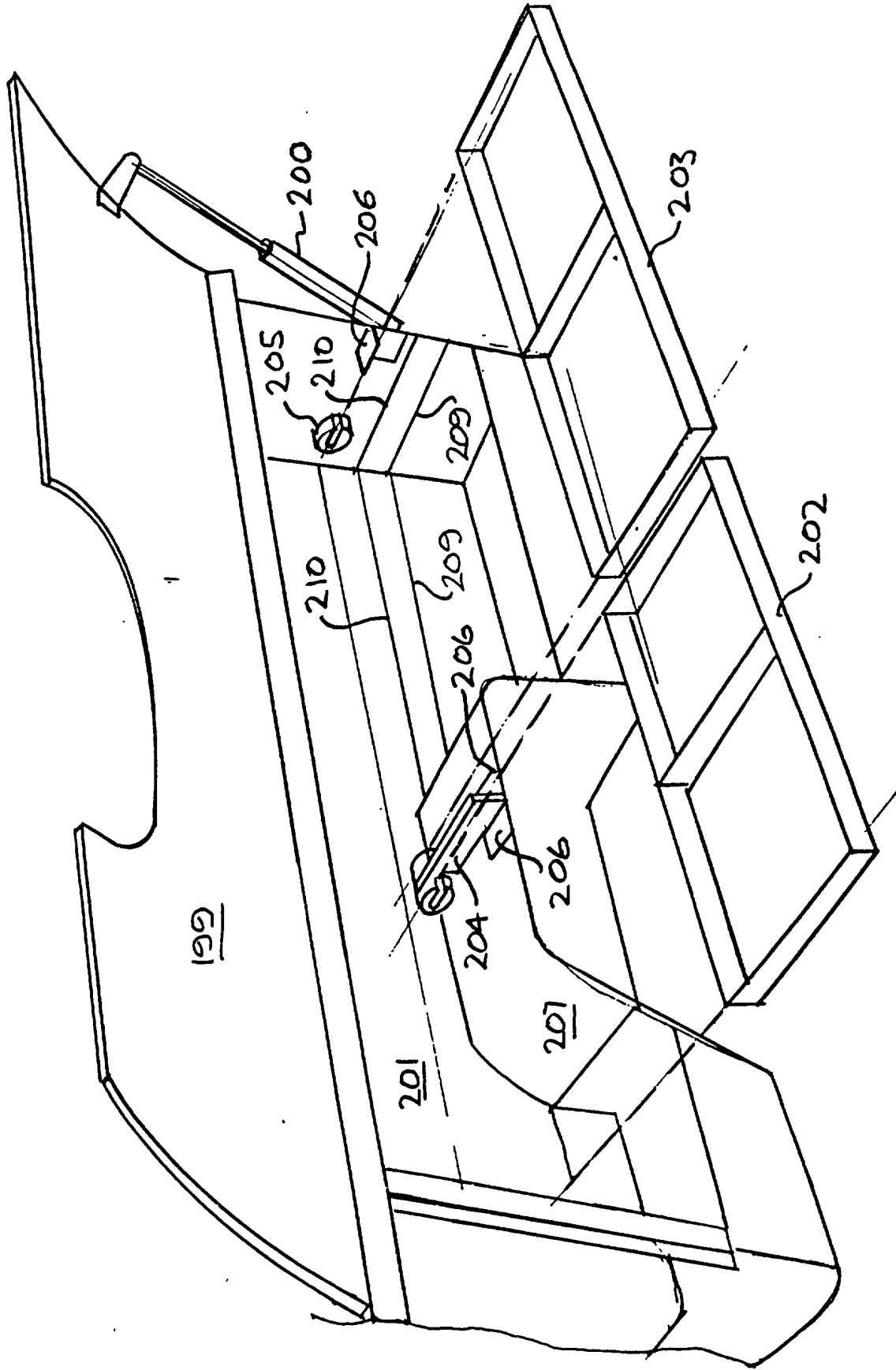


FIG. 18

COMBINED DECLARATION AND POWER OF ATTORNEY

As the below named inventor(s), I (we) hereby declare that:

My (Our) residence, post office address and citizenship(s) are as stated below next to my (our) name(s).

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled Hidden Storage for Vehicles

the specification of which (check one)

☒ is attached hereto ☐ was filed on _____ as Serial No. _____ and was amended on _____ (if applicable).

I (We) hereby state that I (we) have reviewed and understand the contents of the above-identified specification, including claims, as amended by any amendment referred to above.

I (We) acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I (We) hereby claim foreign priority benefits under Title 35, United States Code § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

PRIOR FOREIGN APPLICATION(S)

Priority
claimed

☐ Yes ☐ No

Number	Country	Filed (Day/Month/Year)
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I (We) hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

08/685,678 Serial No.	July 24, 1996 Filing Date	Pending Status
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POWER OF ATTORNEY: As the named inventor(s), I (we) hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Names and Registration Nos.

Names and Registration Nos.

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I (We) hereby declare that all statements made herein of my (our) own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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